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Pure electric Penrose and super-Penrose processes in the flat spacetime

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Abstract

© 2019 World Scientific Publishing Company. Let a particle move in the flat spacetime under the action of the electric potential. If it decays to two fragments, the energy of debris can be larger than the original energy and, moreover, the efficiency of such a process can be unbounded. This effect can be considered as a limit of the Denardo-Ruffini process near the Reissner-Nordström black hole when the gravitational constant and/or black hole mass tend to zero. There are scenarios in which the energy of debris at infinity is much larger than the initial one. Comparison with other close but distinct effects is discussed.

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Keywords

charged black hole, Energy extraction